

STUDIES IN THE HELIANTHEAE (ASTERACEAE). XXXIII.

NEW SPECIES OF *ASPILIA* FROM SOUTH AMERICA.

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The present paper validates the names of one new species of *Aspilia* from Ecuador and three new species from Brasil. This is to allow use of the names in reports and discussions. Other probable undescribed species from Brasil will be treated in a later paper.

The present species are placed in *Aspilia* rather than *Wedelia* with some reservations. The species with sterile ray flowers which form the genus *Aspilia* are rather clearly not a single natural group but relate to more than one element within *Wedelia*. There is also uncertainty regarding the Madagascan type of *Aspilia*, the type apparently having been lost and no extant collections matching the description and illustration. Still, in the absence of clear evidence, *Aspilia* is a convenient segregate, and the sterity of rays does seem to have stability at the level of large species groups. With a few exceptions such as *Wedelia brachycarpa* Baker of the Paraguay area, *Aspilia* seems to contain all the species in the bigeneric complex that have strong fiber sheaths on the veins of the disk corolla throats and that have black anther appendages. It would be wrong to assume at this time that all of *Aspilia* will necessarily fall into the synonymy of *Wedelia*.

ASPILIA ANDERSONII H. Robinson, sp. nov.

Plantae fruticosae 1.0-1.2 m altae mediocriter ramosae. Caules fulvescentes vel cinerascentes teretes et striati perdense hirsuti et hirtelli. Folia opposita subsessilia, petiolis ca. 0.5 mm longis; laminae ovatae plerumque 1.5-3.5 cm longae et 1.0-1.8 cm latae base late rotundatae vel subcordatae margine pauce crenato-serratae apice breviter acutae fere ad basem divaricate trinervatae supra dense pilosae subtus cinereo-tomentosae. Inflorescentiae in ramis foliosis terminales 1-3-capitatae, pedunculis 5-15 mm longis dense hirsuto-tomentosis. Capitula ca. 11-13 mm alta et 10-12 mm lata; squamae involucri 20-24 oblongae subimbricatae 5-10 mm longae et 2-3 mm latae plerumque aut inferne pallidae in partibus apicalibus ca. 2 mm longis plerumque distincte reflexae herbaceae atro-virides intus distincte pilosulae margine inferiore dense hitello-fimbriatae; paleae ca. 9-10 mm longae inferne oblongae ca. 1.5 mm latae et margine vix serratae superne oblongo-ovatae ca. 0.8 mm latae

in sicco mediocriter contortae purpurascentes acutae extus in medio canescentiter minute puberulae. Flores radii ca. 10 in capitulo; corollae flavae, tubis ca. 3 mm longis angustis inferne glabris superne sparse puberulis, limbis oblongis ca. 8 mm longis et 5 mm latis base abrupte subtruncate latioribus in sinibus interioribus dense pilosulis apice bilobatis. Flores disci ca. 20-25 in capitulo; corollae flavae, tubis ca. 2.0-2.5 mm longis cylindraceis glabris, faucibus anguste subcampanulatis ca. 3.5-4.0 mm longis in nervis mediocriter fibrillosis extus plerumque glabris, lobis triangularibus ca. 1.2 mm longis et latis extus base puberulis margine et superne dense scabridulis intus margine dense longe papillose fimbriatis; filamenta in partibus superioribus ca. 0.4 mm longa distincte incrassata; thecae antherarum ca. 3.0-3.3 mm longae nigrae; appendices antherarum ovatae ca. 0.35 mm longae et 0.45 mm latae nigrae; rami stylorum breves lineares supra medio dense puberuli inferne paucis papilloso. Achaenia ca. 5.5 mm longa et 2 mm lata leniter compressa dense hispidula base late rotundata apice constricta breviter coronata; coronae pappi breviter fimbriatae. Grana pollinis in diametro 30-33 μ m.

TYPE: BRASIL: Minas Gerais: Serra do Espinhaço. Ca. 18 km by road SW of Diamantina on road to Curvelo; elev. 1400 m; steep rocky (quartzite) hillside sloping down to gallery forest, with seeps and sedge meadows just above forest. Brittle shrub 1.2 m tall; rays yellow; rocky hillside. 10 April 1973. *W. R. Anderson 8510* (Holotype, UB; isotype, US). PARATYPES: BRASIL: Minas Gerais: Serra do Espinhaço. Ca. 8 km N of Gouveia on road to Diamantina; elev. 1220 m. Rocky (sandstone) cerrado and open rocky hillsides with white sandy soil, sloping down to grassy brejo, creek, and adjacent gallery forest. Rocky hillside. Slender shrub 1 m tall; flowers yellow. 4 Feb. 1972. *W. R. Anderson, M. Stieber, J. H. Kirkbride, Jr. 35395* (US); Ca. 15 km S of Diamantina, Município de Datas; sandstone hills with steep rock faces and grassy or shrubby vegetation; elev. 1250 m. Shrub 1 m tall; flowers yellow. 5 Feb. 1972. *Anderson et al. 35556* (US).

The new species seems most closely related to *Aspilia tomentosa* Baker which also has pale tomentum on the undersurface of the leaves and graduated involucre bracts with reflexed tips. The new species differs markedly by its sessile broadly based rather than elliptical leaves. The pubescence of the plants also seems coarser and more spreading on the stems leaves and bracts.

ASPILIA DIFFUSIFLORA H. Robinson, sp. nov.

Plantae fruticosae 1.0-1.5 m altae mediocriter vel multo ramosae. Caules fulvescentes teretes et striati dense hirtelli et hispiduli. Folia opposita sessilia, petiolis ca. 0.5 mm longis; laminae late ovatae plerumque 1-3 cm longae et 0.5-2.0 cm latae base late rotundatae vel subtruncatae margine paucis

serrulatae apice breviter acutae vel obtusae fere ad basem divaricate trinervatae supra et subtus scabridae subtus leniter pallidius virides. Inflorescentiae solitariae in ramis foliosis axillares et terminales, pedunculis 3-7 mm longis dense antrorse sericeis. Capitula 10-15 mm alta et 7-10 mm lata; squamae involucri ca. 10 herbaceae anguste ovatae 10-11 mm longae exteriores inferne 1.5-2.5 mm latae apice erectae anguste acutae extus interiores scariosae superne sparse scabridulae apice obtusae; paleae ca. 11 mm longae base oblongae et margine irregulariter serratae superne scariosae oblongo-lanceolatae acutae minute serrulatae extus subglabrae interdum rubescentes. Flores radii ca. 8 in capitulo; corollae flavae, tubis ca. 3 mm longis peranguste infundibularibus extus glabris, limbis oblongis 7-8 mm longis et ca. 3 mm latis base in marginem interiorem scabridulis apice bilobatis. Flores disci ca. 12 in capitulo; corollae flavae ca. 7 mm longae, tubis ca. 1.5 mm longis cylindraceis extus glabris, faucibus anguste subcampanulatis ca. 4.5 mm longis in nervis in partibus mediis leniter fibrillosis extus glabris, lobis triangularibus ca. 1 mm longis et 0.8 mm latis extus scabridulis intus margine dense longe papillose fimbriatis; filamenta in partibus superioribus ca. 0.3 mm longa vix incrassata; thecae antherarum ca. 3.5 mm longae nigrae; appendices antherarum ovatae ca. 0.35 mm longae et latae nigrae; rami stylorum lineares extus supra mediam dense puberuli. Achaenia ca. 5 mm longa et 2 mm lata leniter compressa dense hispidula base subtruncata apice constricta breviter coronata, coronae pappi breviter fimbriatae. Grana pollinis in diametro ca. 33 μ m.

TYPE: BRASIL: Minas Gerais: Serra do Espinhaço. Ca. 17 km SW of Gouvêia, Município de Gouvêia, Km 258 on M.G. 259; steep rocky hillside below sandstone cliffs, stream at base of hills, and recently burned cerrado between hills; elev. 1000-1050 m. Shrub 1-1.3 m tall; flowers bright yellow; hillside. 7 Feb. 1972. *W. R. Anderson, M. Stieber, J. H. Kirkbride, Jr. 35649* (Holotype, UB; isotype, US). PARATYPE: BRASIL: Minas Gerais: Serra do Espinhaço. 30 km by road SW of Gouvêia, at km 60 on road to Curvelo; elev. 1150 m; pebbly cerrado and sandy, grassy campo. Wiry shrub 1.5 m tall; rays bright yellow; cerrado. 11 April 1973. *W. R. Anderson 8597* (US).

The new species seems most closely related to species such as *Aspilia subpetiolata* Baker which shares the diffuse inflorescence and the non-reflexed outer involucre bracts. The latter species differs by the elliptical leaves with more prominent spreading pinnate venation, by the coarser scabrid pubescence rather than antrorse rather appressed pubescence, by the near restriction of the hairs of the leaf undersurface to the main veins, and by the mostly elongate peduncles on the heads.

ASPILIA JUGATA H. Robinson, sp. nov.

Plantae suffruticosae et fruticosae 1.2-2.0 m altae non vel mediocriter ramosae. Caules fulvescentes teretes et striati

longe hirsuti et dense minute stipitate glanduliferi. Folia opposita sessilia; laminae oblongo-lanceolatae plerumque 3-7 cm longae et 0.8 cm latae base truncatae vel subcordatae margine subserrulatae apice acutae supra et subtus minute stipitate glanduliferae supra scabridae ad basem in nervis hirsutae subtus pilosulae in nervis primariis et secundariis longe scabridae, nervis secundariis pinnatis 35°-45° ascendentibus utrinque ca. 7-9. Inflorescentiae terminales dense corymbosae pauci-capitatae. Capitula 10-12 mm alta et 7-9 mm lata; squamae involucri 10-12 oblongo-lanceolatae ca. 8 mm longae ca. 2.5 mm latae apice anguste acutae superne herbaceae extus pilosulae et minute glanduliferae margine dense pilosulo-fimbriatae; paleae ca. 8 mm longae base oblongae et margine sensim irregulariter laciniatae superne subduratae lanceolatae argute acutae subintegrae minute scabridulae rubrescentes. Flores radii ca. 8 in capitulo; corollae flavae, tubis ca. 3 mm longis extus sparse hirtellis et puberulis in lobis minutis interioribus dense hirtellis, limbis late oblongis 7-9 mm longis et 4-5 mm latis apice plerumque trilobatis, lobis mediis minoribus. Flores disci ca. 15 in capitulo; corollae flavae ca. 6 mm longae, tubis ca. 1.5 mm longis cylindraceutis glabris, faucibus anguste subcampanulatis 3.0-3.5 mm longis in nervis inferne leniter fibrillosis extus sparse pilosulis, lobis triangularibus ca. 1 mm longis et 0.8 mm latis extus pilosulis ad margine scabridioribus intus margine dense longe papillose fimbriatis; filamenta in partibus superioribus ca. 0.35 mm longa vix incrassata; thecae antherarum ca. 2.5 mm longae nigrae; appendices antherarum 0.4 mm longae et latae nigrae; rami stylorum lineares extus supra mediam dense puberuli. Achaenia ca. 6.5 mm longa et 2 mm lata compressa quadrangulata hispidula base subtruncata apice constricta breviter coronata; coronae pappi breviter fimbriatae. Grana pollinis in diametro ca. 30 μ m.

TYPE: BRASIL: Minas Gerais: Serra do Espinhaço. 3.5 km by road SW of Rio Jequití and Mendanha; elev. 880 m; dense woods on hillside interrupted by quartzite rocks. Shrub 1.2 m tall; rays bright yellow; on rocks. 14 April 1973. *W. R. Anderson 8930* (Holotype, UB; isotype, US). PARATYPES: BRASIL: Minas Gerais: Serra do Espinhaço. ca. 15 km N of São João da Chapada. Elev. 975 m. Cut-over slope forest. Slender shrub to ca. 2 m tall. Rays yellow; disc yellow-brown. 23 March 1970. *H. S. Irwin, S. F. da Fonseca, R. Souza, R. Reis dos Santos, J. Ramos 28108* (US); 22 km from Diamantina, along road NE to Mendanha. Elev. 2800 ft. Flower yellow. Jan. 19, 1981. *R. M. King & L. E. Bishop 8564A* (US).

The new species does not seem to have particularly close relatives among the described members of the genus. The species is most distinctive in the long straight stems with the marked pairing of the sessile leaves. The pinnate venation is also notable because of the elongate blades with many veins. The length of the hairs on the primary leaf vein is distinctive.

ASPILIA PASTAZENSIS H. Robinson, sp. nov.

Plantae fruticosae subprostratae mediocriter ramosae. Caul-es subquadrangulares dense antrorse subappresse scabridi. Folia opposita, petiolis 3-7 mm longis; laminae ovatae plerumque 4-7 cm longae et 2.0-2.5 cm latae base late acutae margine vadose serratae apice anguste acutae vel vix acuminatae fere ad basem trinervatae supra et in nervis et nervulis subtus scabridae. Inflorescentiae in ramis terminales pauci-capitatae, pedunculis 0.7-1.5 cm longis dense antrorse sericeis. Capitula ca. 8-9 mm alta et 7-8 mm lata; squamae involucri 6-7 herbaceae 7-8 mm longae et ca. 3 mm latae apice patentees utrinque scabridae; paleae apice subscariosae subglabrae rotundatae vel obtusae minute puberulo-fimbriatae. Flores radii nulli. Flores disci ca. 22-25 in capitulo; corollae flavae ca. 5 mm longae, tubis cylindraceutis ca. 1.5 mm longis glabris apice subabrupte latioribus, faucibus anguste infundibularibus 3.2-3.5 mm longis in nervis fibrillosis extus glabris; lobis triangularibus ca. 0.7-0.8 mm longis et 0.6 mm latis extus scabridulis intus margine dense longe papillose fimbriatis; filamenta in partibus superioribus ca. 0.3 mm longa; thecae antherarum ca. 2 mm longae nigrae: appendices antherarum parvae ca. 0.25 mm longae et 0.2 mm latae nigrae; rami stylorum anguste lineares extus ad basem puberuli. Achaenia ca. 5 mm longa et 1 mm lata anguste obpyramidata puberula superne sparse pilosula superne valde elongate constricta et minute 3-4-alata; pappi coroniformes irregulariter breviter fimbriati. Grana pollinis in diametro ca. 22 μ m.

TYPE: ECUADOR: Pastaza: Lorocachi. About 5 km S-SW of the military camp. Wet primary forest. Alt. 200 m. (75°58'W 1°38' S). Shrubby creeping. Leaves scabrous. Flowers yellow. May 27, 1980. *J. Brandbyge & E. Asanza C. 31088* (Holotype, AAU; isotype, US).

The species is most distinctive in the lack of rays, a feature that will be considered further in a paper on the genus *Angelphytum*. Checking in the axils of the bracts in the best preserved heads on the plant shows no indication of flowers outside of those with disciform corollas and compressed achenes. The lack of triquetrous outer achenes, the presence of distinct fiber sheaths on the veins of the corolla throats, and the black anther appendages all indicate that the species is an *Aspilia* rather than a *Wedelia*. In addition to the lack of rays, the new species differs from *A. eggertii* Hieron., also of Ecuador, by the smaller heads and the lack of black pigment in the disk corollas, and it differs from *A. jelskii* Hieron., of northern Peru, by the less narrow and less acuminate leaves.



UNITED STATES

2818459

NATIONAL HERBARIUM

A. S. P. (1) Det. ERAND
 A. S. P. (2) Det. J. S. W. P. Anderson
 A. S. P. (3) Det. H. R. Gentry and N. G. Sipes
 Type: M. J. Gentry
 Seres de Zepéhué
 April 1923

Aspilia andersonii H. Robinson, Isotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



THE NEW YORK BOTANICAL GARDEN
 200th Street at the Park
 Bronx, N. Y.

Aspilia diffusiflora H. Robinson
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UNITED STATES

2818790

NATIONAL HERBARIUM

February 1937

Aspilia diffusiflora H. Robinson, Isotype, United States National Herbarium.



PLANTAS DO PLANALTO DO BRASIL
 Collected by Wm. Robinson, New York Botanical Garden, by W. R. Anderson,
 P. G. Williams, J. N. Hill, R. F. Ross, G. S. Senter, and N. Sousa
 Estado de Minas Gerais
 Serra do Espinhaço

UNITED STATES

2818594

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William R. Anderson
 April 1950
 Field notes regarding the collection of this plant are in the files of the
 herbarium and include the following: [illegible]
 Instituto de Pesquisas Cientificas, Rio de Janeiro, Brazil

Aspilia jugata H. Robinson, Isotype, United States National Herbarium.



UNITED STATES

2985069

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FLORA BOLIVIA

Aspilia pastazensis H. Robinson, Isotype, United States National Herbarium.